

THURSDAY, JANUARY 26, 1882

## THE RECENT WEATHER

THE weather of the winter months of 1881-82 bids fair to leave its mark on the annals of meteorology in an unmistakable manner. The abnormalities which are distinguishing it may be considered as having begun with the great storm of October 14, which was so disastrous to life and property, particularly among our seafaring population. During the last week of that month temperature fell low enough to produce frost on the ground, a circumstance here referred to from the significance attached to it by Sir Robert Christison, who has been so long one of our best and shrewdest observers of weather. Sir Robert's opinion is that when the temperature in Scotland during either the last week of October or the first week of November falls low enough to freeze the ground, an open winter will most probably follow, an opinion which the prevailing weather since has fully borne out.

The November which followed was, as we have already shown (*NATURE*, vol. xxv. p. 131), the warmest November in North Britain for the past 118 years, or since thermometers began to be employed to record the temperature. On the 27th of the same month the barometer, reduced to 32° and sea-level, fell at the Butt of Lewis to 27·865 inches, remaining at this low point from 4.30 to 7 a.m., this reading being probably the lowest barometer ever recorded in the British Islands; and over a wide area in the north-west and north of Scotland, and for a considerable time pressure was less than 28·000 inches. December was, generally speaking, as regards its meteorology, an average month, temperature being about a degree and a half above the mean in the north of the Shetlands, and as much below it in the south-west of Ireland; but over the greater portion of these islands the deviation from the normal temperature did not, either way, amount to a degree. Some frost occurred about the middle of the month, but so slight as scarcely to offer any serious check to the growth of grass, and many late and early flowering plants, which at this early season present an appearance and a bloom it would be difficult to parallel in the experiences of the past. The open season has culminated in the really fine weather of the last fortnight, marked by a temperature a long way above the average of January over nearly the whole of the British Islands and the greater portion of Northern Europe.

The outstanding feature of this singular weather is the extraordinarily high barometer which has accompanied it, an anticyclone of a very pronounced character and of great extent having overspread the Continent during this time. Starting from January 10, it is seen that the centre of highest pressure on that day was over Eastern France and Switzerland, in the centre of which pressure rose to 30·512 inches. On the 11th the area of high pressure increased and extended to eastward, retreating again on the 12th to the position it had occupied on the 10th, barometers remaining substantially at the same heights. On the 13th the centre of the anticyclone moved eastward to Prussia, pressure rising in the centre at Berlin to 30·903 inches; and on the following day the centre had advanced to Cracow with a pressure of 30·843 inches, whilst over

well nigh the half of Europe pressure exceeded 30·700 inches. On the 15th the centre was found in the same position, but pressure had risen at Lemberg to 31·024 inches. On the 16th the anticyclone again retreated somewhat to westward, and at Wilna the pressure rose to 31·071 inches which is unquestionably one of the highest readings of the barometer ever recorded in this part of the earth's surface. On the 17th the centre occupied the region of the Alps, where at Berne, pressure was 31·012 inches; on the 18th it had retreated to westward so that the southern parts of England and Ireland were covered by it, pressure there being all but 31·000 inches. On the three following days, the anticyclone retained very much the same position, but the highest pressure in the centre fell successively to 30·093 inches at Oxford, 30·079 inches at Nottingham, and 30·076 inches near the Isle of Wight.

In vols. xxi., xxii., and xxiii., we took occasion, in reviewing the splendid series of International Weather Maps issued by the Meteorological Department at Washington, to point out and enforce attention to the important relations thereby disclosed between the distribution of atmospheric pressure, and that of temperature. The same relations have been observed during the past fortnight. Let our Daily Weather Reports be looked at from the 11th to the 16th, and it will be seen that the British Islands lay between the anticyclone which overspread the Continent with its high pressures, and a system, or systems, of low pressures out in the Atlantic; and that the barometric gradient was considerable during the time. With this arrangement of the pressure, southerly winds set in, characterised by a remarkable volume and persistency, and since owing to the great extension southwards of the anticyclonic area, they had come from a great distance, these winds were further characterised by a mildness and a warmth reminding one rather of the weather often experienced towards the end of September. The mean temperature of London for these days was 5°·6 above the normal, and in the Scilly Isles 6°·3.

On the other hand, as the anticyclonic area advanced on the south of England, the southerly winds gave way and were replaced with light winds and calms. The effects of terrestrial radiation now manifested themselves in a pronounced manner over the comparatively calm area, and the temperature of London markedly fell, and fogs began to prevail, as frequently happens under these conditions. On the 18th and 19th it was 5°·8 below the normal. At the same time our western and northern coasts were outside the calm anticyclonic centre, and within the outer region where moderate barometric gradients prevailed, and there, accordingly, southerly and south-westerly winds and high temperatures prevailed. Thus while in London the temperature was 5°·8 below the normal, it was 5°·2 above the normal at Mullaghmore, 6°·4 at Leith, 9°·2 at Wick, and 9°·6 at Stornoway. We have seen that the centre of the anticyclone advanced sooner on Lyons than on London, and there accordingly temperature fell sooner below the normal. Colder weather set in at Lyons on the 12th, at Paris on the 14th, London on the 17th, and the Isle of Wight on the 18th.

Over regions situated to the south of the anticyclonic

area, particularly to the south-east, northerly winds ruled, and as a consequence temperatures fell below the normal. Thus at Algiers during these days temperature was constantly under the mean, varying from  $2^{\circ}9$  to  $6^{\circ}5$ , the whole period showing a mean deficiency of  $5^{\circ}0$ ; and from the 13th the mean deficiency was  $3^{\circ}8$  at Malta, and  $5^{\circ}6$  at Constantinople. On the other hand, over the north of Europe, which was during this time outside the calm anticyclonic centre, and marked with moderate barometric gradients, westerly and southerly winds prevailed, in some cases in considerable force, as on the occasion when a storm appeared in the Arctic Sea to the north. This region was therefore characterised almost throughout by abnormally high temperatures, the mean excess at Haparanda, at the head of the Gulf of Bothnia, being  $21^{\circ}9$  for the week ending Saturday last.

Thus, with barometers equally, or all but equally high the most diverse temperatures prevailed, the conditions determining the temperature in any locality not being the height of the barometer but the position of the locality with reference to the areas of high and of low pressure which prevailed over Europe at the time; or putting the result into the simplest words, it was not the height of the barometer, but the direction and force of the wind, which determined the temperature.

The highest barometer noted in the Weather Charts as having occurred in the British Islands during this time was  $30.970$  inches at 8 a.m. of the 18th at Oxford. Higher barometers than this even were recorded in 1808, at Gordon Castle, Banffshire, by Mr. James Hoy, he having noted  $31.007$  inches at 9 p.m. of February 24 of that year; and again  $31.046$  inches at 11 p.m. of January 8, 1820, this last reading being in all probability the highest reading yet recorded in these islands.

#### MR. MIVART ON THE CAT

*The Cat.* An Introduction to the Study of Backboned Animals, especially Mammals. By St. George Mivart, Ph.D., F.R.S. With 200 Illustrations. (London: John Murray, 1881.)

THE author of the present volume tells us in his preface that it "is expressly intended to be an introduction to the natural history of the whole group of *backboned animals*; but the subject has been so treated as to fit it also to serve as an introduction to Zoology generally, and even to Biology itself." By serving as a guide to the structure, as ascertained by dissection, and natural history of the cat, it will, it is hoped, "give the earnest student of biology the knowledge of anatomy, physiology, and kindred sciences which is necessary to enable him to study profitably the whole class" of Mammals, the natural history of these generally being, we are told, to be treated of in a companion volume.

After a somewhat careful study of the bulky volume of 550 pages before us, it is with some regret that we doubt if Prof. Mivart's intentions are likely to be realised, as, trying to attain two very desirable ends, it is not evident that he has succeeded in either.

The student of anatomy will, we think, find that much of the descriptive part of the present work is too sketchy to be of real service as a text-book of Mammalian anatomy, and the almost complete absence of references—even to

Strauss-Durckheim's elaborate "*Anatomie descriptive et comparative du Chat*," published, with excellent illustrations, at Paris so long ago as 1845—also seriously detracts from its value in this respect. On the other hand, any one taking it up with a view to understanding the main principles and objects of [biological science will, even if he succeed in his endeavour, be liable we fear to be disgusted by the large amount of "dry" and quite unreadable detail contained in it. Nor can we always speak very highly of the accuracy and style displayed in the volume in question.

After an introductory chapter, eight chapters are devoted to the consideration of the various organs of the cat, the anatomical structure of each system being accompanied by an account of its histology and functions. As already indicated, the descriptions of many of the parts concerned strike us as rather too brief and wanting in preciseness, whilst in some parts that we have tested we find considerable omissions. Thus in the account of the cranial nerves in Chapter IX. we find no mention of such interesting nerves as the vidian and recurrent laryngeal; in the myological portion, no account at all is given of the important subject of the nerve-supply of the various muscles described, which is only indicated later on when considering the distribution of the nerves themselves.

With regard to the histology of the various tissues, it would be more satisfactory as convincing the reader that it is the cat, and not some other mammal the structure of which is being described, if the illustrations were not so frequently taken from the pig or the well-known figures of Quain's Anatomy.

Chapter X. is devoted to the "Development of the Cat," and here it would have been still more desirable that the author should have stated explicitly how much, or how little, of its contents apply to the cat, or at least have given references to the authorities for some of his statements. The account given seems, as far as we can judge, intended to be a *résumé* of the principal facts ascertained as regards the development of *Mammalia* generally, but if so some of the views put forward are rather startling.

Thus on p. 320 we are told that "the first indication of the embryo is the appearance of a longitudinal depression or furrow, termed the *medullary groove*." Fig. 145, to which reference is made, pretty clearly shows that what is meant is, in reality, the *primitive streak* (in fact it is called, in the explanation, though *not* in the description, of that figure the "primitive groove")—a structure of quite a different order and significance, as surely Prof. Mivart must know, from the real medullary groove. The heart is said to be formed by "*one* vessel, tubular and rhythmically contractile"; in fact, in Mammals, as in Birds, it always arises from *two* tubes, which only unite subsequently (Cf. Balfour's "Embryology," vol. ii. pp. 522, 523). In the account of the development of the nervous system the statement made that "the white matter of the spinal cord is formed by transformation of the cells of the adjacent MESOBLAST" (p. 356), is quite opposed to all that we know of the development of that system in Vertebrates, and we are left to infer that the "mass of the nerves" are also derived from mesoblast, in contradiction to the observation and views of our most distinguished embryologists. The account of the deve-